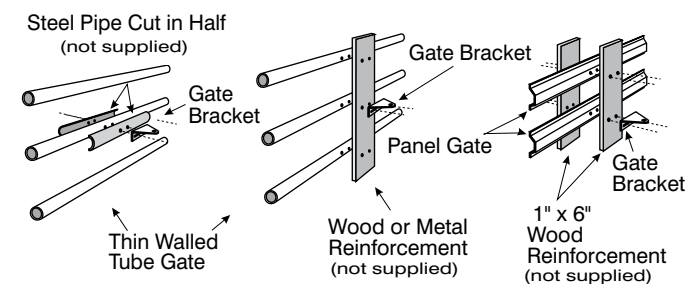


What else will you need?

Other Materials You May Need

- Low voltage wire (RB509) (16 gauge, multi- stranded, dual conductor, direct burial) wire will be needed. Wire length depends upon which accessories are used and the distance between the transformer power supply and the gate. [1000 ft. (304 m) max.]
- If your gate is more than 1000 ft. (304 m) away from an 110V AC power source, Mighty Mule Solar Panels must be used to trickle charge the battery. The FM350, FM500 and FM502 are solar compatible.
- If your gate opens out from your property, you need to purchase or special order a "push-to-open" bracket (FM148) through your retailer. Call 1-800-543-1236 for technical support. (dual gates require 2 brackets).
- If you have thin walled tube or panel gates, you will need to reinforce them. See diagrams below for tips on reinforcing these types of gates.
- Depending on the type of gates, a horizontal cross member or mounting plate may be needed to mount the opener arm and gate bracket to the gate.
- Your gate must be in good working order, firmly hung on well seated fence post, and swing freely and evenly. This operator will not work on gates with wheels or gates that drag on the ground.
- Gates weighing more than 250 lbs. (111.4 kg) require ball bearing hinges (not provided by Mighty Mule).
- Gate post greater than 8" (20.3 cm) thick will require longer bolts than those provided to mount gate brackets to post. (Rule of thumb, gate post thickness plus two more inches.)
- Gate post less than 4 inches will require reinforcement hardware; large metal washers or steel plates for each side of the post.
- Masonry column installation may require special procedures. Call 1-800-543-1236 (GTO Technical Support) for details.

Suggestions for materials you will need to reinforce your gate: (not in kit or available from GTO)



Tools You'll Need:

- Power Drill
- Open End Wrenches: 3/8", 7/16", 1/2", and 9/16"
- 3/8" Drill Bit
- Hacksaw or Heavy Duty Bolt Cutters
- Slotted (Flat Bladed) Screwdriver
- Phillips Screwdriver
- Tape Measure
- Level
- Wire Strippers
- C-Clamps — (small, medium, and large)



All Mighty Mule E-Z Gate® Openers are Certified and Listed in COMPLIANCE with UL325 SAFETY STANDARDS. Mighty Mule®, E-Z Gate®, GTO®, are registered trademarks of GTO, Inc. America's DIY Automatic Gate Openers™ is a trademark of GTO, Inc. and is the exclusive property of GTO, Inc. ("GTO"). All rights are reserved by GTO, and these marks may not be used, without the prior written permission of GTO®. Copyright ©2007.

MMISP07
Rev. 3/07

Checklist

- ☐ Do you have all the tools for the installation?
- ☐ Did you purchase the proper power supply option? (low voltage wire or solar)
- ☐ If your gate swings out from your property did you purchase the push-to-open bracket(s) (FM148)?
- ☐ Did you note the 'standard' hardware package – will this suit your installation (some additional hardware maybe needed)?
- ☐ If you purchased the digital keypad, did you get 3 AA batteries?

Answers to commonly asked questions

- What is a Mighty Mule E-Z Gate Opener?**
A Mighty Mule E-Z Gate is a remote controlled automatic gate opener system. It is the industry leading gate opener available for the "Do-It-Yourself" installer. Because it is battery operated and uses low voltage power, it is safe (no electrician needed), affordable, and easy to install.
- How is a Mighty Mule E-Z Gate Opener Powered?**
All Mighty Mule gate openers are low voltage systems with a 12 Volt battery back up system. This assures operation of your gate during a power outage. The battery can either be charged by the included transformer, OR can be charged by optional solar panel(s).
- How do I Install the Solar Panels?**
The Mighty Mule solar panel (FM121) is a complete kit for easy mounting within 8 ft. of the control box. If your panel(s) must be placed farther away than 8 ft. (up to 250 ft.) to receive maximum sunlight, additional low voltage wiring will be required. It is important that the solar panels face South and are placed in full sunlight, away from overhanging trees, or any obstacle that may shade the panels(s).
- Will the Mighty Mule Open During A Power Outage?**
Yes. A fully charged FM500 or FM502 battery will provide an average of fifty (50) cycles (open and close) and the FM350 battery (12 Volt car or marine battery not included) provides up to 1500 cycles during a power outage. This number can vary depending on factors such as the type of gate, number of accessories added, and weather conditions if using solar panel(s) (FM121) to charge the battery.
- Can I Manually Open the Gate?**
Yes! Each opener arm is mounted to the brackets on the post(s) and gates(s) with clevis pins and clips. By removing the pin and clip at the front end, the arm can be removed and allow the gate to be opened manually.
- What Happens if the Gate Opener Hits Something?**
All Mighty Mule E-Z Gate openers have built-in safety obstruction sensing which will cause the gate(s) to "Stop" and "Reverse" its direction for two seconds if it comes in contact with an object. If the gate comes in contact with the object twice before returning to its fully open or close position, an alarm will sound for 5 minutes.
- Is the Mighty Mule Gate Opener Difficult to Install?**
No. Most installations can be completed easily in two to three hours. Dual gates will take slightly longer because two operator arms are required. All installations can be completed with tools commonly used by most homeowners. Kits include an installation video (see box for details.)
- What Maintenance is required?**
All Mighty Mule E-Z Gate Openers are designed to be virtually maintenance free. However, it is recommended that the push-pull tube be sprayed once a month with a good grade of "silicone" spray. DO NOT use an oil based spray as this will attract sand and dirt.



FREE INSTALLATION DVD in ALL KITS!

OUR OPENERS WORK ON ALL TYPES OF GATES

Chain Link • Ornamental • Tube • Vinyl • Wood

QUESTIONS to consider when purchasing an opener:

ASK ABOUT THE NEW FM200 for 12ft. - 300lb gates

- 1) Do you have a single or dual gate?
- 2) Does your gate swing or slide?
 - A) If swing, continue with guide below.
 - B) If slide, ask your retailer about special ordering or call 1-800-543-GATE (4283) for additional information.
- 3) Does your gate swing into or away from your property?
- 4) How long is each gate leaf?
- 5) How much does each gate leaf weigh?
- 6) Is your gate within 1000 ft. of a 110V AC power source? IF NOT, SOLAR CHARGING IS AN OPTION.
- 7) If your gate is longer than 18 ft. or weighs more than 850 lbs. per leaf; ask you retailer about special ordering or call 1-800-543-GATE (4283) for additional information.

Which Mighty Mule Gate Opener Is Right For You?

	MIGHTY MULE 200 E-Z GATE OPENER	MIGHTY MULE 350 E-Z GATE OPENER	MIGHTY MULE 500 E-Z GATE OPENER SINGLE
GATE TYPE	Single	Single and Dual (FM352)	Single and Dual (FM502)
MAX. GATE WEIGHT	Up to 300 lbs. (Max weight is relative to length of gate)	Up to 550 lbs. (Max weight is relative to length of gate)	Up to 850 lbs. (per leaf) (Max weight is relative to length of each leaf)
MAX. GATE LENGTH	12 feet	16 feet	18 feet (per leaf)
AC POWER SUPPLY (within 1000' of gate)	18V Heavy-Duty Transformer is included	18V Heavy-Duty Transformer is included	18V Heavy-Duty Transformer is included
BATTERY	NOT INCLUDED (12 V automotive/marine style battery required)	NOT INCLUDED (12 V automotive/marine style battery required)	INCLUDED
SOLAR COMPATIBLE	Yes	Yes	Yes (dual gates require 10 Watt minimum)
CYCLES PER DAY	175 (with transformer) with 1500 battery backup cycles	175 (with transformer) with 1500 battery backup cycles	115 (with transformer) with 25 battery backup cycles
GATE OPENING DIRECTION	For gates that open into the property only.	Gates opening away from property require an optional bracket (FM148)	Dual gates opening away from property require two optional brackets (FM148)

GATE OPENER GUIDE

Which automatic gate opener is right for you?

- SINGLE SWING:**
- ❑ FM350 - Light duty swing gate opener
 - ❑ FM500 – Heavy duty swing gate opener
- DOUBLE SWING:**
- ❑ FM502 – Heavy duty dual gate opener
- SLIDE:**
- ❑ MM-SL1000B – Light duty slide gate opener
 - ❑ MM-SL2000B – Heavy duty slide gate opener

- 1 How will you open your gate from your vehicle?**
- ❑ FM135 – Single button transmitter
 - ❑ FM134 – Two-button transmitter
 - ❑ RB743 – Three-button transmitter
 - ❑ RB709 – Garage door receiver – enables GTO transmitter to open garage door and gate.

- 2 How will you provide secure access for your gate?**
- ❑ FM137 – Digital keypad
 - ❑ FM136 – Wireless intercom keypad
 - ❑ FM100 – Mounting post for your keypad

- 3 Would you like hands-free exit from the property?**
- ❑ FM138 – 50 ft. gate opening sensor
 - ❑ FM140 – 100 ft. gate opening sensor
 - ❑ FM141 – 150 ft. gate opening sensor

- 4 How will you secure the gate?**
- ❑ FM143 – Automatic gate lock – Secures gate in closed position
 - ❑ FM133 – Pin lock – Secures the gate opener to gate
 - ❑ FM145 – Bulldog gate lock – Secures walk-through gates

- 5 How will you keep the gate opener battery charged?**
- (Kit includes AC transformer, solar power is optional)
- POWER EQUIPMENT:**
- ❑ FM121 – 5 watt solar panel
 - ❑ FM123 – 10 watt solar panel
 - ❑ RB509 – Wire needed for installation
 - ❑ FM150 – Replacement battery for models FM500, FM502

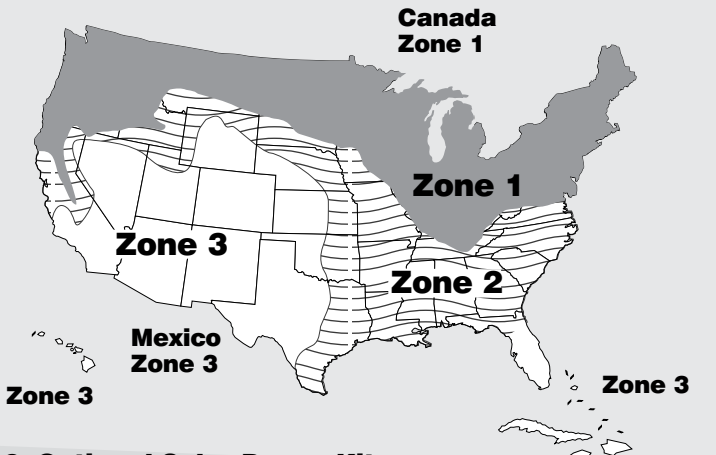
- Special Considerations**
- ❑ Does your gate open away from property?
Gates opening away from property, require an optional bracket per gate leaf. (FM148)
 - ❑ AC power source is more than 1000 ft. from gate?
Solar power is required. (FM121 or FM123)
 - ❑ Require livestock containment?
An Automatic Gate Lock (FM143) is recommended.
 - ❑ Windy conditions?
An Automatic Gate Lock (FM143) is recommended.



POWERING GUIDE

There are two ways the Mighty Mule's battery can be charged.

- 1. Transformer (18V included with kit)**
- All Mighty Mule E-Z Gate Openers come with a transformer for maintaining the battery charge. You can run up to 1000 ft. of low voltage wire (RB509 *not included*) from the opener control box to the 110 V AC outlet where the transformer is plugged. If your gate is more than 1000 ft. from an AC power source, or you just prefer to use solar power, you can use the optional Mighty Mule solar panel(s) to maintain the Mighty Mule battery backup.



- 2. Optional Solar Power Kits.**
- The solar option will have some limits. The table and map illustrate the maximum number of gate cycles to expect per day in a particular area when using 5 to 30 Watts of Mighty Mule solar panels. The figures shown are for winter (minimum sunlight) and do not account for the use of any accessory items. Accessories connected to your system will draw additional power from the battery.

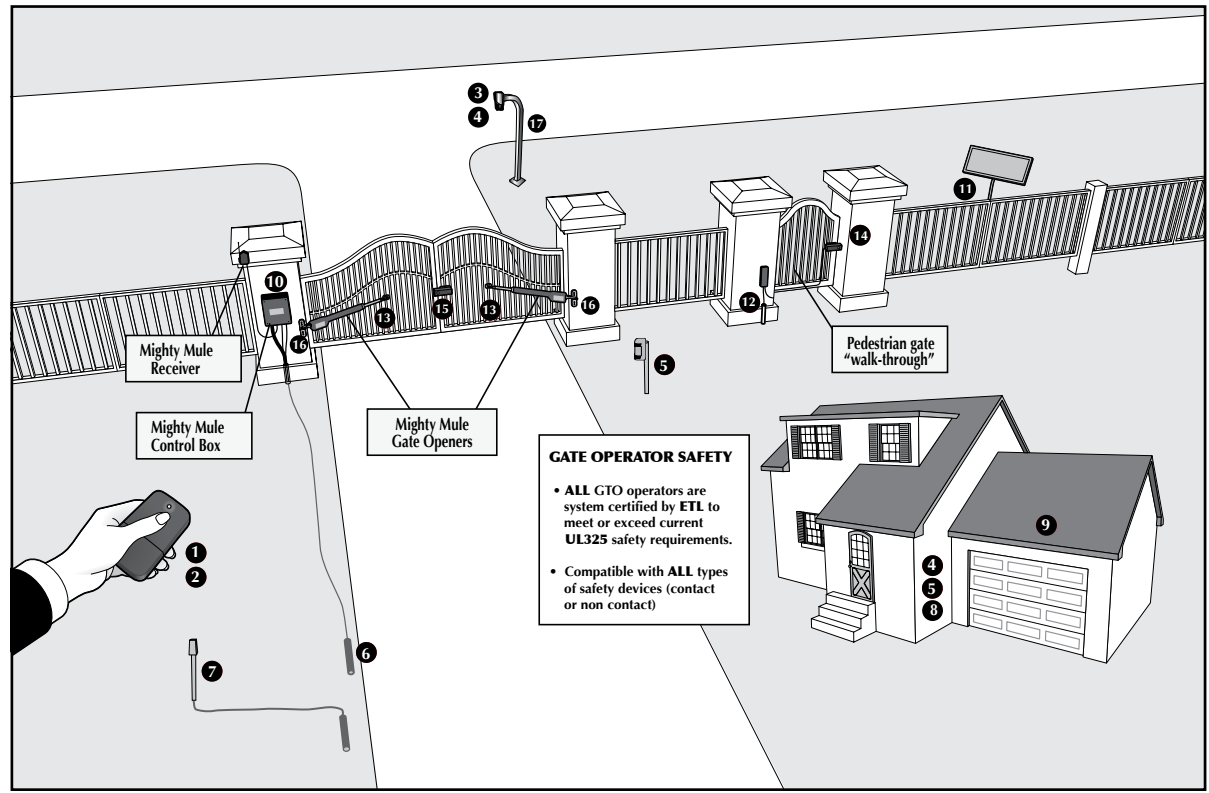
Solar Panel Application Charts					
Mighty Mule® Automatic Gate Openers					
350/500 SINGLE Swing Gates	Model #	Watts	Zone 1	Zone 2	Zone 3
	FM350/500	5	4	8	13
	FM350/500	10	8	16	26
	FM350/500	15	11	20	30
	FM350/500	20	14	28	38
	FM350/500	25	17	36	46
	FM350/500	30	20	44	54
(estimated number of cycles per day)					
502 DUAL Swing Gates	FM502	10	4	8	13
	FM502	15	7	13	20
	FM502	20	10	18	27
	FM502	25	13	23	34
	FM502	30	16	28	41
	(estimated number of cycles per day)				
Dual gates require a minimum of 10 Watts solar charging power					
NOTE: A maximum of 30 Watts of solar charging power can be connected to Mighty Mule E-Z Gate Openers.					

- Special Considerations:**
- For solar applications using Mighy Mule models FM500 & FM502, it is recommended that you purchase an optional second battery (FM150) for back up cycles during overcast days. The control boxes are prewired for the optional second battery.
 - Dual gate require 10 Watts of solar charging power. Use two 5 watt panels (FM121) or one 10 Watt solar panel (FM123) available by



ACCESSORIES

FOR GATE OPENERS



- ENTRY / EXIT ACCESSORIES**

1 Single Button Entry Transmitter (FM135)
The Mighty Mule entry transmitter includes a visor clip and has adjustable code settings. This is the standard transmitter included in every Mighty Mule gate opener kit. (Battery is included)

2 Dual Button Key Chain Transmitter (FM134)
This transmitter is the same as Mighty Mule entry transmitter with the addition of a key chain and a second button. Both buttons are programable to control multiple gate openers on different gates and / or garage door openers. [see Garage Door Receiver] (Battery is included)

3 Digital Keypad (FM137)
The digital keypad can be easily installed as a wireless or wired keypad. It can be programmed to use up to twenty-five different personal identification number (PIN) codes. This used in combination with the Mighty Mule automatic gate lock (see automatic gate lock) adds an additional layer of security for your property.

4 Wireless Intercom/Keypad (FM136)
This versatile digital intercom with keypad system is ideal for any residential application, and can acceptup to four base units for maxiumn flexibility. The intercom provides superior range with crystal clear two-way communication up to 500 ft. (152.4 m) wireless or 1,000 ft. (304.8 m) wired.

5 Wireless Driveway Alarm (FM131)
Keep track of who enters your property with this electromagnetic sensor alert system. When a vehicle passes the sensor, the receiver emits an audible tone and lets you know someone's there.
- 6 Gate Opening Sensor (FM138)**
The gate opening sensor is an electromagnetic sensor, which offers 'hands free' operation of the Mighty Mule Gate Opener with a 12 ft. (3.7 m) radius of detection of vehicles in motion.

7 Wireless Gate Opening Sensor (FM130)
The wireless gate opening sensor does the same thing as the Gate Opening Sensor (FM138) but requiers no trenching between the Sensor and the Gate Opener.

8 Push Button Control (FM132)

9 Garage Door Receiver (RB709)

POWERING ACCESSORIES

10 Replacement Battery (FM150)
For models: FM500 / FM502 use (FM150) which is a standard 12 Volt, 7.0 amp-hour, maintenance-free battery for the Mighty Mule® gate opener systems. For model FM350 please use a 12 Volt marine or automotive battery that is not provided in kit.

11 Solar Panel 5 Watt (FM121) or 10 Watt (FM123)
The solar panel is for use for up to 30 Watts of solar charging power for Mighty Mule® models FM350, FM500 and FM502. Each solar panel comes with tubular steel support, mounting clips, wire connectors, and 8 ft. of Low Voltage Wire. NOTE: Dual gates require a minimum of 10 Watts.

12 Low Voltage Wire (RB509)
The 16 gauge, multi-stranded, dual conductor Low Voltage Wire is for connecting the AC powered transformer, or the solar panel to the control board. Also used for the connection of accessories, such as automatic gate lock (FM143), digital keypad (FM137, FM136), Push Button (FM132) and other wired control devices. This specially designed wire is UV treated, PVC coated and ready for direct burial. Available in 1000 ft. (304.8 m) rolls or special lengths.
- LOCKING ACCESSORIES**

13 Pin Lock (FM133)
The Pin Lock is a substitute for the clevis pin at the front mounting point of all models of SWING Mighty Mule gate openers and the chains of the Mighty Mule SLIDE Gate Openers to help prevent theft of the opener.

14 Bulldog Pedestrian Gate Lock (FM145)
Designed for horizontal use on "walk-through" gates. An affordable solution for protecting swimming pool areas, playgrounds, tennis courts, boat docks, etc., from unwanted access. Can be used with the digital keypad (FM137 or FM136) and is solar compatible.

15 Automatic Gate Lock (FM143)
A MUST for added security. Unlocks and locks automatically as gates open and close. Used with Mighty Mule systems for maximum stability and security. Comes with a keyed manual release. Recommended for gates over 8 ft. (2.4 m) long. Ideal for animal enclosures or high wind areas. (Not compatible with MM-SL1000B/MM-SL2000B)

HARDWARE ACCESSORIES

16 Push to Open Bracket (FM148)
Required when a Mighty Mule swing gate opener(s) must push a gate open, such as on a sloping driveway or where space prevents gate(s) from opening into the property (pulled open). Order 2 brackets for a dual gate installation.

17 Keypad Mounting Post (FM100 / FM110)
For mounting the digital keypad, availbe with stand or direct burial.